

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Currently Amended) An image encoding apparatus, comprising:
 - input means for inputting motion-image data;
 - control means for outputting an encoding parameter such that an amount of code provided when the input motion-image data is encoded in units of predetermined sizes is a predetermined amount of code;
 - storage means for storing the an encoding parameter output from said control means, and*
selecting means for selecting the encoding parameter output from said control means or ~~a past~~ the encoding parameter stored in said storage means; and
 - encoding means for encoding the input motion-image data ~~input by~~
~~said input means using the selected encoding parameter by the selected encoding parameter.~~

2. (Currently Amended) An image encoding apparatus according to Claim 1, wherein said selecting encoding means selects encodes a predetermined number of frames of the input motion-image data from the top by the use of the encoding parameter output from said control means and selects encodes the subsequent frames of the input motion-image data by the use of the encoding parameter stored in said storage means.

3. (Previously Presented) An image encoding apparatus according to Claim 2, further comprising detecting means for detecting a change between frames of the input motion-image data,

wherein said selecting means selects an encoding parameter according to the output of the detecting means.

4. (Original) An image encoding apparatus according to Claim 3, wherein said input means comprises capture means for capturing an object, and

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the detecting means detects a change of the input motion-image data according to a camera parameter of the capture means.

5. (Original) An image encoding apparatus according to Claim 3, wherein said encoding means adaptively selects an intra-encoding mode or an inter-encoding mode to encode the motion-image data.

6. (Original) An image encoding apparatus according to Claim 5, wherein said encoding means forcedly executes the intra-encoding mode at a predetermined period.

7. (Original) An image encoding apparatus according to Claim 4, wherein the detecting means detects a change of the motion-image data by detecting at least one of a change of white balance, a change of the iris, and a change of zooming.

8. (Original) An image encoding apparatus according to Claim 1, further comprising recording means for recording the motion-image data encoded by said encoding means, into a recording medium.

9. (Original) An image encoding apparatus according to Claim 1, wherein said encoding means comprises quantization means for quantizing the motion-image data, wherein the quantization parameter of the quantization means is used as the encoding parameter.

10. (Original) An image encoding apparatus according to Claim 1, wherein said encoding means executes encoding conforming to the MPEG-1 or MPEG-2 standard.

11. (Currently Amended) An image encoding method comprising the steps of:

inputting motion-image data;
outputting an encoding parameter such that an amount of code provided when the input motion-image data is encoded in units of predetermined sizes is a predetermined amount of code;
storing ~~the output~~ an encoding parameter in a storage medium;
selecting the output encoding parameter or ~~a past~~ the encoding parameter stored in the storage medium; and
encoding the input motion-image data ~~using~~ by the selected encoding parameter.

12. (Currently Amended) A storage medium for storing a program, the program comprising:

input processing of inputting motion-image data;
control processing of outputting an encoding parameter such that an amount of code provided when the input motion-image data is encoded in units of predetermined sizes is a predetermined amount of code;
storage processing of storing the output an encoding parameter;
selecting processing of selecting the encoding parameter output from said control processing or ~~a past~~ the encoding parameter stored in said storage processing;
and
encoding processing of encoding the input motion-image data ~~using~~ by the selected encoding parameter.

13. (Previously Presented) An image encoding apparatus, comprising:

an input device for inputting motion-image data;
a quantizer for quantizing the inputted motion-image data, based on quantization coefficient information applied to an input of said quantizer;
an encoder for encoding image data quantized by said quantizer to output corresponding encoded image data including a number of codes;
a rate control circuit for determining whether or not the number of codes included in the encoded image data exceeds a predetermined threshold value, and for outputting a selected one of a plurality of first sets of quantization coefficients, based on a result of that determination;

a memory storing a plurality of second sets of quantization coefficients; and

a selector for selecting either the first set of quantization coefficients output by said rate control circuit or one of the second sets of quantization coefficients stored in said memory, and applying the selected set of quantization coefficients to the input of said quantizer, to cause said quantizer to quantize the inputted motion-image data, based on that selected set of quantization coefficients.

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14. (Previously Presented) An image encoding apparatus according to Claim 13, wherein, for a predetermined number of frames of the inputted motion-image data, said selector selects the set of first-quantization coefficients output by said rate control circuit, and applies that selected set of first quantization coefficients to the input of said quantizer, to enable said quantizer to quantize the inputted motion-image data based on that set of first quantization coefficients, and wherein for subsequent frames of the inputted motion-image data, said selector selects one of the sets of second quantization coefficients and applies that selected set of second quantization coefficients to the input of said quantizer, to enable said quantizer to quantize the inputted motion-image data based on that selected set of second quantization coefficients.

15. (Original) An image encoding apparatus according to Claim 13, further comprising a detector for detecting a change in adjacent frames included in the inputted motion-image data,

wherein said selector selects either the set of first quantization coefficients output by said rate control circuit or one of the sets of second quantization coefficients stored in said memory, based on an output of said detector.

16. (Original) An image encoding apparatus according to Claim 15, wherein said input device comprises an image capturer for capturing images that are in view of the image capturer to input the motion-image data, and said detector detects the change in the adjacent frames included in the inputted motion-image data based on an output of said image capturer.

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17. (Original) An image encoding apparatus according to Claim 15, wherein said encoder encodes the image data quantized by said quantizer according to either an inter-encoding technique or an intra-encoding technique, depending on a selection made by said selector.

18. (Original) An image encoding apparatus according to Claim 17, wherein said selector selects the set of first quantization coefficients for a predetermined number of frames of the inputted motion-image data, to cause said encoder to encode the image data quantized by said quantizer according to the intra-encoding technique.

19. (Previously Presented) An image encoding apparatus according to Claim 13, further comprising a detector for detecting at least one of a change of a white balance in the inputted motion-image data, a change in an iris, and a zooming change,

wherein said selector selects either the set of first quantization coefficients output by said rate control circuit or one of the sets of second quantization coefficients stored in said memory, based on an output of said detector.

20. (Original) An image encoding apparatus according to Claim 13, further comprising a recorder for recording the encoded image output by said encoder.

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21. (Original) An image encoding apparatus according to Claim 13, wherein said encoder encodes the image data quantized by said quantizer in accordance with at least one of the MPEG-1 standard and the MPEG-2 standard.

22. (Original) A method for encoding motion-image data, comprising the steps of:

inputting motion-image data;
providing a set of quantization coefficients to a first input of a quantizer;
applying the inputted motion-image data to a second input of the quantizer to cause the quantizer to quantize the inputted motion-image data based on the set of quantization coefficients provided to the first input of the quantizer, and outputting resulting quantized image data;
encoding image data quantized by the quantizer to provide encoded image data including a number of codes;

determining whether or not the number of codes included in the encoded image data exceeds a predetermined threshold value, and selecting one of a plurality of provided sets of first quantization coefficients, based on a result of that determination; and

selecting either the selected one of the provided sets of first quantization coefficients or one of a plurality of provided sets of second quantization coefficients, and applying that selected set of quantization coefficients to the first input of the quantizer to cause the quantizer to quantize the inputted motion-image data based on that selected set of quantization coefficients.

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23. (Original) A storage medium storing a program having computer-readable code for executing a method for encoding motion-image data, the method comprising the steps of:

inputting motion-image data;

providing a set of quantization coefficients to a first input of a quantizer;

applying the inputted motion-image data to a second input of the quantizer to cause the quantizer to quantize the inputted motion-image data based on the set of quantization coefficients provided to the first input of the quantizer, and outputting resulting quantized image data;

encoding image data quantized by the quantizer to provide encoded image data including a number of codes;

determining whether or not the number of codes included in the encoded image data exceeds a predetermined threshold value, and selecting one of a plurality of provided sets of first quantization coefficients, based on a result of that determination; and

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selecting either the selected one of the provided sets of first quantization coefficients or one of a plurality of provided sets of second quantization coefficients, and applying that selected set of quantization coefficients to the first input of the quantizer to cause the quantizer to quantize the inputted motion-image data based on that selected set of quantization coefficients.
